ATSDR's Substance-Specific Priority Data Needs - Unfilled		
Substances	**PDN Description**	**Status[(1)]**
Aldrin/Dieldrin	• Bioavailability from soil • Exposure levels in humans living near hazardous waste sites and other populations, such as exposed workers • Potential candidate for subregistry of exposed persons	Unfilled
Arsenic	• Comparative toxicokinetic studies to determine if an appropriate animal species can be identified • Half-lives in surface water, groundwater • Bioavailability from soil	Unfilled
Asbestos	• Epidemiologic studies of individuals occupationally exposed to asbestos levels lower than those experienced before the institution of current occupational standards governing the use of asbestos, but higher than current levels in the general population. These studies should be performed in conjunction with the immunotoxicity studies • Immunotoxicity studies of individuals occupationally exposed to asbestos • Development of human and rat lung retention models to aid in extrapolating between rat and human data • Improved analytical methods for screening samples and determining the chemical structure of asbestos fibers. Also, techniques are needed to normalize studies in which different analytical methods were employed • Exposure levels, fiber size distribution, and asbestos fiber type in areas with natural geologic deposits of friable asbestos and at hazardous waste sites. Also, techniques for estimating air levels of asbestos from soil concentrations and activity scenarios • Exposure levels in humans living near hazardous waste sites and in other populations, such as humans living in areas with naturally high levels of friable asbestos	Unfilled

Benzidine	• Dose-response data for acute[2]- and intermediate[3]-duration exposure via the oral route (the study of intermediate-duration exposure should include evaluation of reproductive and endocrine organ histopathology, lymphoid tissues histopathology as well as examination of relevant blood components, and nervous system histopathology) • Exposure levels in humans living near hazardous waste sites • Exposure levels in children • Potential candidate for subregistry of exposed persons	Unfilled
Beryllium	• Dose-response data in animals for acute- and intermediate-duration inhalation exposures. The intermediate-duration study should include extended reproductive organ histopathology • Prenatal developmental toxicity study via inhalation exposure • Environmental fate in air; factors affecting bioavailability in air • Immunotoxicology battery of tests following oral exposure • Potential candidate for subregistry of exposed persons	Unfilled
Carbon tetrachloride	• Dose-response data in animals for chronic[4] oral exposure. The study should include extended reproductive organ and nervous tissue histopathology • Potential candidate for subregistry of exposed persons	Unfilled
Chlordane	• Bioavailability studies following ingestion of contaminated media • Potential candidate for subregistry of exposed persons	Unfilled
Chlorinated dibenzo-p-dioxins (CDDs)	• Studies via oral exposure designed to assess childhood susceptibility • Comparative toxicokinetic studies examining the relative absorption of CDDs across exposure routes and the relative contribution of each exposure route to total body burdens	Unfilled
Chloroethane	• Potential candidate for subregistry of exposed persons	Unfilled

Chloroform	• Potential candidate for subregistry of exposed persons	Unfilled
Chromium	• Dose-response data in animals for acute-duration exposure to chromium (VI) and (III) via oral exposure and for intermediate-duration exposure to chromium (VI) via oral exposure • Multigeneration reproductive toxicity study via oral exposure to chromium (III) and (VI) • Immunotoxicology battery of tests following oral exposure to chromium (III) and (VI) • Prenatal developmental toxicity study via oral exposure to chromium (III) and (VI)	Unfilled
Cyanide	• Exposure levels in humans living near hazardous waste sites and other populations, such as exposed workers • Potential candidate for subregistry of exposed persons	Unfilled
1,2-dibromo-3-chloropropane	• Dose-response data in animals for acute-duration exposure via the oral route (including reproductive organ histopathology) • Dose-response data in animals for chronic-duration exposure via the oral route (including reproductive organ histopathology) • Prenatal developmental toxicity study via oral exposure • Immunotoxicology testing battery via oral exposure • Neurotoxicology testing battery via oral exposure • Exposure levels in humans living near hazardous waste sites and other exposed populations, such as exposed workers • Potential candidate for subregistry of exposed persons	Unfilled
1,2-Dibromoethane	• Dose-response data in animals for acute- and intermediate-duration exposure by the oral route (the study of intermediate-duration exposure should include evaluation of neuropathology and observation for overt signs of neurotoxicity) • Multigeneration reproductive toxicity studies via oral exposure • Prenatal toxicity studies via oral exposure • Immunotoxicity battery studies via oral exposure • Exposure levels in humans living near hazardous waste sites and in other populations, such as workers exposed to 1,2-dibromoethane • Exposure levels in children • Potential candidate for subregistry of exposed persons	Unfilled

1,2-Dichloroethane	• Dose-response data in animals for acute-duration (14-day) exposure by the inhalation route, including a comparison of young and adult animals • Dose-response data in animals for acute-duration (14-day) exposure by the oral route, including a comparison of young and adult animals • Dose-response data in animals for intermediate-duration exposure by the inhalation route (the study should be performed in conjunction with the neurotoxicology battery of tests) • Neurotoxicology battery of tests following inhalation exposure • Neurotoxicology battery of tests following oral exposure • Dose-response data in animals for chronic-duration exposure by the oral route • Prenatal developmental toxicity data for inhalation exposure (assessment of developmental cardiotoxicity and neurotoxicity) • Prenatal developmental toxicity data for oral exposure (assessment of developmental cardiotoxicity and neurotoxicity) • Additional analyses and studies for comparative toxicokinetics across species, ages, routes, and durations • Children's susceptibility • Exposure levels in humans living near hazardous waste sites • Exposure levels in children • Potential candidate for subregistry of exposed persons	Unfilled
1,1-Dichloroethene	• Dose-response data in animals for acute- and intermediate-duration exposure by the oral route • Carcinogenicity studies in two species following inhalation exposure • Reproductive toxicity studies assessing male and female end points following inhalation exposure • Prenatal developmental toxicity studies following oral exposure • Immunotoxicology battery of tests following oral exposure • Battery of neurobehavioral tests following inhalation exposure • Children's susceptibility • Exposure levels in humans living near hazardous waste sites • Exposure levels in children • Potential candidate for subregistry of exposed persons	Unfilled

DDT	• Dose-response data in animals for chronic-duration oral exposure • Comparative toxicokinetic study (across routes/species) • Bioavailability and bioaccumulation from soil • Potential candidate for subregistry of exposed persons	Unfilled
Di(2-ethylhexyl) phthalate	• Epidemiologic studies on the health effects of DEHP (Special emphasis end points include cancer) • Dose-response data in animals for acute- and intermediate-duration oral exposures. The intermediate-duration study should include an extended histopathologic evaluation of the immunologic and neurologic systems • Multigeneration reproductive toxicity study via oral exposure • Exposure levels in humans living near hazardous waste sites and other populations, such as exposed workers • Potential candidate for subregistry of exposed persons	Unfilled
Di-n-butyl phthalate	• Dose-response data in animals for chronic-duration exposure via the oral route • Carcinogenicity studies via oral exposure • Exposure levels in humans living near hazardous waste sites and other populations, such as exposed workers • Environmental fate of di-n-butyl phthalate in environmental media • Bioavailability in contaminated environmental media near hazardous waste sites • Potential candidate for subregistry of exposed persons	Unfilled
Disulfoton	• Exposure levels of disulfoton in tissues/fluids for populations living near hazardous waste sites and other populations, such as exposed workers • Disulfoton should be considered as a potential candidate for a subregistry of exposed persons	Unfilled

Endosulfan (α,β, and sulfate)	• Acute-duration oral exposure studies • Data on sensitive neurologic end point following oral exposure • Exposure levels in humans living near hazardous waste sites and other populations, such as exposed workers • Data on the bioavailability of endosulfan from soil • Potential candidate for subregistry of exposed persons	Unfilled
Endrin/endrin aldehyde	• Dose-response animal data for acute oral exposure to endrin • Multigeneration reproductive toxicity studies via oral exposure to endrin • Accurately describe the toxicokinetics of endrin and its degradation products and identify the animal species to be used as the most appropriate model for human exposure • Exposure levels for endrin and its degradation products in humans living near hazardous waste sites • Accurately describe the environmental fate of endrin, including environmental breakdown products and rates, media half-lives, and chemical and physical properties of the breakdown products that help predict mobility and volatility • Potential candidate for subregistry of exposed persons	Unfilled
Ethylbenzene	• Dose-response data for acute-duration exposure by the inhalation route • Dose-response data for chronic-duration exposure by the inhalation route • Dose-response data for acute- and intermediate-duration exposure by the oral route; the study of intermediate-duration exposure should include an evaluation of clinical signs of neurotoxicity and histopathology of reproductive organs, endocrine glands, and nervous system • Multigeneration toxicity study examining reproductive end points and indicators of endocrine disruption following inhalation exposure • Prenatal developmental study with continued assessment of offspring during postnatal development following oral exposure • Studies for comparative toxicokinetics • Exposure levels in humans living near hazardous waste sites • Exposure levels in children • Potential candidate for subregistry of exposed persons	Unfilled

Heptachlor/ heptachlor epoxide	• Dose-response animal data for acute- and intermediate-duration oral exposures, including immunopathology • Bioavailability from contaminated air, water, and soil and bioaccumulation potential • Potential candidate for subregistry of exposed persons	Unfilled
Hexachlorobutadiene	• Dose-response data in animals for acute-duration exposure via the oral route • Exposure levels in humans living near hazardous waste sites and other populations, such as exposed workers • Environmental fate studies that determine the extent to which hexachlorobutadiene volatilizes from soil, and studies that determine the reactions and rates which drive degradation in soil • Bioavailability studies in soil and plants • Potential candidate for subregistry of exposed persons	Unfilled
Hexachlorocyclohexane (α, β, γ, and δ)	• Mechanistic studies on the neurotoxicity, hepatotoxicity, reproductive toxicity, and immunotoxicity of hexachlorocyclohexane • Potential candidate for subregistry of exposed persons	Unfilled
Manganese	• Exposure levels in humans living near hazardous waste sites and other populations, such as exposed workers • Relative bioavailability of different manganese compounds and bioavailability of manganese from soil	Unfilled
Mercury	• Immunotoxicology battery of tests via oral exposure • Potential candidate for subregistry of exposed persons	Unfilled
Methoxychlor	• Exposure levels of methoxychlor and primary metabolites in humans living near hazardous waste sites and in those individuals with the potential to ingest it • Evaluate the fate, transport, and levels of the degradation products of methoxychlor in soil • Potential candidate for subregistry of exposed persons	Unfilled

Methylene chloride	• Potential candidate for subregistry of exposed persons	Unfilled
Nickel	• Dose-response data in animals for acute- and intermediate-duration oral exposures • Neurotoxicology battery of tests via oral exposure • Bioavailability of nickel from soil • Potential candidate for subregistry of exposed persons	Unfilled
Pentachlorophenol	• Comparative toxicokinetic studies • Potential candidate for subregistry of exposed persons	Unfilled
Polychlorinated biphenyls (PCBs)	• Dose-response data in animals for acute- and intermediate-duration oral exposures • Biodegradation of PCBs in water; bioavailability of PCBs in air, water, and soil • Dose-response data in animals for acute- and intermediate-duration inhalation exposures. The intermediate-duration study should include extended reproductive organ histopathology • Potential candidate for subregistry of exposed persons	Unfilled
Polycyclic aromatic hydrocarbons (PAHs) **(Includes 15 substances)**	• Potential candidate for subregistry of exposed persons	Unfilled
Selenium	• Dose-response data in animals for acute-duration oral exposure • Immunotoxicology battery of tests via oral exposure • Potential candidate for subregistry of exposed persons	Unfilled
1,1,2,2-Tetrachloroethane	• Prenatal developmental toxicity study by the oral route • Immunotoxicity battery following oral exposure • Mammalian *in vivo* genotoxicity assays • Exposure levels in humans living near hazardous waste sites • Exposure levels in children • Potential candidate for subregistry of exposed persons	Unfilled

Tetrachloroethylene	• Potential candidate for subregistry of exposed persons	Unfilled
Toluene	• Potential candidate for subregistry of exposed persons	Unfilled
Toxaphene	• Identify the long-term health consequences of exposure to environmental toxaphene via oral exposure • Conduct additional immunotoxicity studies for chronic-duration via oral route of exposure • Conduct additional neurotoxicity studies for chronic-duration via oral route of exposure • Exposure levels in humans living in areas near hazardous waste sites with toxaphene and in those individuals with the potential to ingest it • Potential candidate for subregistry of exposed persons	Unfilled
Vinyl chloride	• Dose-response data in animals for chronic-duration inhalation exposure • Mitigation of vinyl chloride-induced toxicity • Exposure levels in humans living near hazardous waste sites and other populations, such as exposed workers • Potential candidate for subregistry of exposed persons	Unfilled
Xylenes	• Dose-response data for chronic-duration exposure by the oral route. This study should be done in conjunction with the neurotoxicology battery of tests • Neurotoxicology battery of tests following oral exposure • Two-generation reproductive study following oral exposure • Prenatal developmental toxicity study that includes neurodevelopmental end points following oral exposure • Exposure levels in humans living near hazardous waste sites • Exposure levels in children • Potential candidate for subregistry of exposed persons	Unfilled

Zinc	• Carcinogenicity testing (2-year bioassay) via oral exposure • Exposure levels in humans living near hazardous waste sites and other populations, such as exposed workers • Potential candidate for subregistry of exposed persons	

(1) Currently, no data have been identified to fill the priority data need.

(2) Acute-duration exposure = 14 days or less.

(3) Intermediate-duration exposure = 15 -364 days.

(4) Chronic-duration exposure = 365 days or more.